

CLAIMS:

1. Wireless power receiving apparatus for use with a portable electrical device to enable the device to receive power wirelessly, the apparatus comprising:
a power-receiving element adapted to be attached to the device, and also
5 being adapted to receive power wirelessly from a transmitter of power when the element and transmitter are in proximity with one another; and
one or more power connectors which, when the apparatus is in use, are connected electrically to the power-receiving element and are adapted to be connected to one or more corresponding power connectors of the portable electrical
10 device to deliver power received by the element to the device.
2. Apparatus as claimed in claim 1, wherein said power-receiving element is adapted to be attached adhesively to the device when the apparatus is in use.
3. Apparatus as claimed in claim 1, further comprising mechanical
15 attachment means adapted to attach the power-receiving element mechanically to the device when the apparatus is in use.
4. Apparatus as claimed in claim 1, wherein said power-receiving element forms part of a replacement cover portion of the portable electrical device.
5. Apparatus as claimed in claim 1, wherein said power-receiving
20 element and at least one of said power connectors of the apparatus are connected rigidly together, whereby connection of said at least one power connector to its said corresponding power connector of the portable electrical device serves to attach the power-receiving element mechanically to the device.
6. Apparatus as claimed in any one of claims 1 to 4, further comprising a
25 flexible connecting member connecting said one or more power connectors flexibly to said power-receiving element.
7. Apparatus as claimed in claim 6, wherein said flexible connecting member also serves to connect said one or more power connectors electrically to the power-receiving element.
8. Apparatus as claimed in any one of claims 1 to 5, having one or more
30 electrical connections extending between said power-receiving element and said one or more power connectors, said one or more electrical connections being detachable

from said power-receiving element and/or from said one or more power connectors when the apparatus is not in use.

9. Apparatus as claimed in any preceding claim, wherein said portable electrical device has first connector means adapted to connect to corresponding
5 second connector means of external equipment, said first connector means providing said one or more corresponding power connectors of the portable electrical device, and the apparatus further comprising:

third connector means adapted to connect to said first connector means of the portable electrical device, said third connector means providing said one or more
10 power connectors of the apparatus;

fourth connector means adapted to connect to said second connector means of said external equipment; and

a pass-through connection arrangement interconnecting at least one connector of said third connector means and a corresponding connector of said fourth connector
15 means.

10. Apparatus as claimed in claim 9, wherein said first to fourth connector means also provide connectors for purposes other than power delivery, and said pass-through connection arrangement serves to interconnect corresponding connectors of said third and fourth connector means used for said other purposes.

20 11. Apparatus as claimed in any preceding claim, further comprising:
power-conditioning circuitry operable to condition the power received by the power-receiving element prior to delivery to the portable electrical device.

12. Apparatus as claimed in any preceding claim, wherein said power-receiving element is small relative to said portable electrical device.

25 13. Apparatus as claimed in any preceding claim, wherein said power-receiving element is thin relative to said portable electrical device.

14. Apparatus as claimed in any preceding claim, wherein a volume occupied by said power-receiving element is small in comparison with a volume occupied by said portable electrical device.

30 15. Apparatus as claimed in any preceding claim, wherein said power-receiving element is of sufficiently small dimensions that, when attached to the portable electrical device, it does not substantially alter the ergonomics of the device.

16. Apparatus as claimed in any preceding claim, wherein parts of said power-receiving element that are visible to a user of the device when the element is attached to the device have an external appearance which conforms to an external appearance of adjacent parts of the device.

5 17. Apparatus as claimed in any preceding claim, wherein a part of said power-receiving element which must be placed in proximity with the transmitter is marked or coloured or labelled distinctively.

10 18. Apparatus as claimed in any preceding claim, wherein said power-receiving element has, at a surface thereof that is visible to a user of the portable electrical device when the element is attached to the device, a substantially transparent pocket for carrying an insert to be visible to the user.

19. Apparatus as claimed in any preceding claim further comprising an indicator which produces a predetermined indication of an operating state of the apparatus.

15 20. Apparatus as claimed in any preceding claim, wherein said power-receiving element is substantially flat.

21. Apparatus as claimed in any preceding claim, wherein said power-receiving element is flexible.

20 22. In combination a portable electrical device and wireless power receiving apparatus as claimed in any preceding claim.

23. The combination of claim 22, wherein said power-receiving element is attached to an external surface portion of the device.

24. The combination of claim 22, wherein said power-receiving element is attached to an internal surface portion of the device.

25 25. The combination of claim 24, wherein said internal surface portion is a surface portion of a battery compartment of the device.

26. The combination of any one of claims 22 to 25, wherein said one or more corresponding power connectors of the portable electrical device are internal power connectors.

30 27. The combination of any one of claims 22 to 26, wherein said one or more corresponding power connectors of the portable electrical device are battery connectors.

28. A power-receiving element in the form of a sticker adapted to be attached adhesively to a surface portion of a portable electrical device, the element being adapted to receive power wirelessly from a transmitter of power when the element and transmitter are in proximity with one another, and having connection means from which an electrical connection can be made to a power connector of the device.

29. A power-receiving element as claimed in claim 28, wherein said sticker has a removable backing sheet on its adhesive side which is removed at the time of attaching the element to the device.

30. A power-receiving element as claimed in claim 28 or 29, wherein a side of said sticker opposite its adhesive side conforms in appearance to surface portions of the portable electrical device that will be adjacent to said opposite side when the sticker is attached to the device.

31. A power-receiving element as claimed in any one of claims 28 to 30, wherein said sticker has, on its side opposite its adhesive side, a substantially transparent pocket for carrying an insert.

32. A replacement cover portion for a portable electrical device, the cover portion carrying or incorporating a power-receiving element adapted to receive power wirelessly from a transmitter of power when the element and transmitter are in proximity with one another, and having connection means from which an electrical connection can be made to a power connector of the device.

33. A replacement cover portion as claimed in claim 32, having a power connector part carrying one or more power connectors connected operatively to the power-receiving element and arranged to connect, when the replacement cover portion is in place on the device, to one or more corresponding power connectors of the portable electrical device.

34. A replacement cover portion as claimed in claim 32 or 33, adapted to cover a battery compartment of the portable electrical device, and having one or more battery connectors adapted to connect to one or more corresponding battery connectors of the device and/or to terminals of one or more batteries installed in the device.

35. A replacement cover portion as claimed in claim 34, wherein said one or more battery connectors of the cover portion are adapted to be interposed between said battery terminals and said corresponding battery connectors of the device.

36. A replacement cover portion as claimed in claim 32 or 33, adapted to
5 cover a battery compartment of the portable electrical device, and further carrying or incorporating at least one rechargeable battery such that, when the replacement cover portion is in place on a device, the battery is installed operatively in the battery compartment, the power-receiving element being connected operatively to the battery for charging the battery for charging the battery when power is received
10 wirelessly from the transmitter.

37. A replacement cover portion as claimed in any one of claims 32 to 36, being a replacement cover portion for a handset of a mobile communications network.

38. A method of adapting a portable electrical device having no wireless
15 power receiving capability to have such a capability, the method comprising:
attaching a power-receiving element to the device, the element being adapted to receive power wirelessly from a transmitter of power when the element and transmitter are in proximity with one another; and
connecting one or more power connectors, which are connected electrically to
20 the element, to one or more corresponding power connectors of the device so that power received by the element can be delivered to the device.